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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,979	01/29/2004	Richard Frederick McNichol	1546P01US	2812

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EXAMINER	
STIMPERT, PHILIP EARL	
ART UNIT	**PAPER NUMBER**
3709	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/765,979	MCNICHOL, RICHARD FREDERICK	
	Examiner	Art Unit	
	Philip E. Stimpert	3709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *18 October 2005, 19 May 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: Copy of claims from 10/587,903 .

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 9 recites a "pressure release valve." In the specification, the only analogous structure is the one-way valve (120) which "permits liquid to flow from chamber 90.1 into conduit 122, but prevents liquid from flowing in the opposite direction" (pg 9 of applicant's specification). Thus, it appears that this structure functions as a check valve against backflow from the receiver. It is not clear that this structure constitutes a pressure release valve.

Claim Objections

1. Claim 7 is objected to because of the following informalities: the limitation "sixth passageway" is actually only the fifth distinct passageway being claimed. This creates an ambiguous impression about the structure being claimed. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 includes a limitation, "an area against which pressurized fluid acts in the direction of movement of the piston," which is indefinite.

The piston of the applicant's invention has two faces, each with an area against which pressurized fluid acts in the direction of movement of the piston during different parts of the piston's stroke. Since these areas are necessarily distinct due to the provision of the piston rod, the later limitation of the "piston rod having a smaller area within the reload chamber upon which pressurized fluid in the reload chamber acts in a direction of movement of the piston and piston rod compared to said area of the piston," is rendered indefinite. Because of this indefiniteness, one of ordinary skill in the art would not be apprised of the metes and bounds of the claim. For the purposes of this office action, this limitation will be assumed to refer to the top face of the piston.

4. Claim 9 is directed towards a pressure release valve in the second conduit. It is not clear what pressure is being released, and the specification offers no clarification on this matter. For the purposes of this office action, the examiner will assume that the valve is acting to release pressurized liquid (and thereby pressure) from the volume of the vertically oriented cylinder below the piston.

Double Patenting

5. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

6. Claims 1-9 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 2-10 filed on July 28, 2006, in copending Application No. 10/587903. A copy of these claims has been included with this office action. While there are differences between the wording to the two versions of the claims, the differences do not affect the scope. For instance, in lines 5-6 of '903's claim 1, a "first aperture" is recited, which is only recited in line 15 of the instant application's claim 1 as "an aperture". The instant application also recites the limitation "whereby liquid in the cylinder acting downwardly on the piston exerts a greater force on the piston than liquid in the reload chamber acting against the piston rod" in lines 21-23 of claim 1, which is not recited in '903. However this function is inherent in the structure described by both versions of the claims. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney (US 6,193,476), in view of Sutliff (US 3,148,629).

9. With regard to claims 1-5, Sweeney discloses a piston type pumping apparatus comprising a vertically oriented cylinder (47) having a top (48) and a bottom (22), a first passageway (col 3, ln 6-7 indicates that production fluid is discharged, entailing a

passageway of some sort) for liquid in the cylinder adjacent to the top thereof, a second passageway (connecting stroke piston chamber 29 to cylinder 47) for liquid adjacent to the bottom thereof, a piston (38) reciprocatingly mounted within the cylinder and having an area (27) against which pressurized fluid acts in the direction of movement of the piston, a hollow piston rod (11, 24) connected to the piston and extending slidably and sealingly through an aperture (sealed by 20) in the bottom of the cylinder, a reload chamber (42) below the cylinder, th piston rod extending slidably and sealingly into the reload chamber (42) and having a third passageway (within 11) for liquid communicating with the reload chamber, a first one-way valve (12) located in the third passageway which permits liquid to flow from the reload chamber into the piston rod and prevents liquid from flowing from the piston rod into the reload chamber, a fourth passageway (4) for liquid extending from the reload chamber to a source of liquid to be pumped, a second one-way valve (5) in the fourth passageway which permits liquid to flow from the source of liquid into the reload chamber and prevents liquid from flowing from the reload chamber towards the source of liquid, means (40) for storing pressurized liquid connected to the second passageway for storing pressurized liquid displaced below the piston as the piston moves downwardly and to assist in raising the piston and liquid contained within the piston rod to pump liquid upwardly through the first passageway. Sweeney further discloses that the means for storing pressurized liquid includes a body of liquid (40), and that there is a piston type pump (30) connected to the body of liquid (40) for pumping liquid into the cylinder below the piston to raise the piston. Sweeney also discloses that the piston is above the second passageway.

Sweeney does not disclose, however, that the area of the piston is smaller in the reload chamber than in the upper cylinder. Sutliff teaches that a "differential between the horizontal cross sectional area of the upper plunger 31 and that of the lower plunger 32" (col. 3, ln. 40-43) gives a pump "a tremendous advantage in operating on highly viscous oil in that the downward power assist given the plunger 30 on its downstroke by the hydrostatic pressure thus applied downwardly against said plunger operates over the full downward stroke of the plunger" (col 3, ln. 54-59). Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the pump of Sweeney to decrease the area of the lower piston head (37), in order to provide a power assist to the downstroke of the piston. The examiner notes that it would be necessary to decrease the diameter of the cylinder (47) somewhere below the pressure shoulder (18) in order to maintain the seal between the lower piston head (37) and the cylinder wall.

10. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweeney, in view of Sutliff as applied to claims 1-3 above, further in view of English (US 3,135,210). Sweeney further teaches that there is a conduit (see Fig. 1) connecting the second passageway the body of liquid. Further, Sweeney's body of liquid (40) and piston (30) constitute a receiver (claim 8). Sweeney does not teach a centrifugal pump, nor that there is a sixth passageway for liquid adjacent to the bottom of the cylinder, nor a first conduit connecting the sixth passageway to the pump, nor a pressure release valve adjacent to the second passageway.

11. With regard to claims 6-7 and 9, English teaches that power fluid used to drive a piston (col. 4, ln. 46-50) may be supplied by centrifugal pump connected to an intake line and a discharge line (col. 5, ln. 43-45). Sweeney also teaches ball check valves (ie. 5, 12, 32) for use in allowing fluid flow in one direction while preventing flow in the opposite direction. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the pump of Sweeney to provide power fluid to the piston with a centrifugal pump, and to provide the pump with a sixth passageway and conduit connecting the cylinder to the centrifugal pump and to provide a pressure relief valve preventing flow from the conduit back into the cylinder from the receiver, in order to provide power fluid to drive the piston.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip E. Stimpert whose telephone number is (571) 270-1890. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM, Alt. Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jackson can be reached on (571) 272-4697. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PES /pd/

PES (14 March 2007)

GARY JACKSON
SUPERVISORY PATENT EXAMINER

/Gary Jackson/
5/14/2007

WHAT IS CLAIMED IS:

1. A piston type pumping apparatus, comprising:

a vertically oriented cylinder having a top and a bottom, the bottom having a first aperture;

a first passageway for liquid in the cylinder at the top thereof;

a second passageway for liquid in the cylinder at the bottom thereof;

a piston reciprocatingly mounted within the cylinder and having an area against which pressurized fluid acts in the direction of movement of the piston;

a hollow piston rod connected to the piston and extending below the piston and slidably and sealingly through the first aperture in the bottom of the cylinder;

a reload chamber below the cylinder, the piston rod extending slidably and sealingly into the reload chamber and having a third passageway for liquid communicating with the reload chamber, the piston rod having a smaller area within the reload chamber upon which pressurized fluid in the reload chamber acts in a direction of movement of the piston and piston rod compared to said area of the piston;

a first one-way valve located in the third passageway which permits liquid to flow from the reload chamber into and above the piston rod and prevents liquid from flowing back through the piston rod into the reload chamber;

a fourth passageway for liquid extending from the reload chamber to a source of liquid to be pumped; and

a second one-way valve in the fourth passageway which permits liquid to flow from the source of liquid into the reload chamber and prevents liquid from flowing from the reload chamber towards the source of liquid.

2. The apparatus of claim 1, wherein the apparatus further includes means for storing pressurized liquid connected to the second passageway for storing pressurized liquid displaced below the piston, as the piston moves downwardly, and to assist in raising the piston and, accordingly, liquid contained within the piston rod, to pump liquid upwardly and through the first passageway.

3. The apparatus of claim 2 wherein the means for storing pressurized liquid includes a body of liquid.

4. The apparatus of claim 3, including a pump connected to the body of liquid for pumping liquid into the cylinder below the piston to raise the piston.

5. The apparatus of claim 4, wherein the pump is a piston type pump.

6. The apparatus as claimed in claim 5, wherein the pump is above the second passageway.

7. The apparatus of claim 4, wherein the pump is a centrifugal pump.

8. The apparatus of claim 7, including a sixth passageway for liquid adjacent to the bottom of the cylinder, a first conduit connecting the sixth passageway to the pump and a second conduit connecting the second passageway to the body of liquid.

9. The apparatus of claim 8, wherein the body of liquid is a receiver.

10. The apparatus of claim 9, including a pressure release valve adjacent to the second

WHAT IS CLAIMED IS:

1. A piston type pumping apparatus, comprising:

a vertically oriented cylinder having a top and a bottom, the bottom having a first aperture;

a first passageway for liquid in the cylinder at the top thereof;

a second passageway for liquid in the cylinder at the bottom thereof;

a piston reciprocatingly mounted within the cylinder and having an area against which pressurized fluid acts in the direction of movement of the piston;

a hollow piston rod connected to the piston and extending below the piston and slidably and sealingly through the first aperture in the bottom of the cylinder;

a reload chamber below the cylinder, the piston rod extending slidably and sealingly into the reload chamber and having a third passageway for liquid communicating with the reload chamber, the piston rod having a smaller area within the reload chamber upon which pressurized fluid in the reload chamber acts in a direction of movement of the piston and piston rod compared to said area of the piston;

a first one-way valve located in the third passageway which permits liquid to flow from the reload chamber into and above the piston rod and prevents liquid from flowing back through the piston rod into the reload chamber;

a fourth passageway for liquid extending from the reload chamber to a source of liquid to be pumped; and

a second one-way valve in the fourth passageway which permits liquid to flow from the source of liquid into the reload chamber and prevents liquid from flowing from the reload chamber towards the source of liquid.

2. The apparatus of claim 1, wherein the apparatus further includes means for storing pressurized liquid connected to the second passageway for storing pressurized liquid displaced below the piston, as the piston moves downwardly, and to assist in raising the piston and, accordingly, liquid contained within the piston rod, to pump liquid upwardly and through the first passageway.

3. The apparatus of claim 2 wherein the means for storing pressurized liquid includes a body of liquid.

4. The apparatus of claim 3, including a pump connected to the body of liquid for pumping liquid into the cylinder below the piston to raise the piston.

5. The apparatus of claim 4, wherein the pump is a piston type pump.

6. The apparatus as claimed in claim 5, wherein the pump is above the second passageway.

7. The apparatus of claim 4, wherein the pump is a centrifugal pump.

8. The apparatus of claim 7, including a sixth passageway for liquid adjacent to the bottom of the cylinder, a first conduit connecting the sixth passageway to the pump and a second conduit connecting the second passageway to the body of liquid.

9. The apparatus of claim 8, wherein the body of liquid is a receiver.

10. The apparatus of claim 9, including a pressure release valve adjacent to the second

passageway in the second conduit.

11. The apparatus of claim 1, wherein the apparatus further includes:

a second aperture in the top of the cylinder, the hollow piston rod extending above the piston and slidably and sealingly through the second aperture;

a transfer chamber above the cylinder, the piston rod above the piston extending slidably and sealinlgy into the transfer chamber;

a discharge chamber located above the transfer chamber;

a fifth passageway for liquid communicating from the transfer chamber to the discharge chamber; and

a third one-way valve in the fifth passageway which permits liquid to flow from the transfer chamber to the discharge chamber and prevents liquid from flowing from the discharge chamber towards the transfer chamber;

whereby pressurized fluid entering through the first passageway being operable to move the piston downwardly and pressurized fluid entering through the second passageway being operable to move the piston upwardly.

12. The apparatus of claim 11, wherein the piston is annular in shape.

13. The apparatus of claim 11, wherein the first one-way valve includes a first valve member, a first valve seat and a first valve passageway, the second one-way valve includes a second valve member, a second valve seat and a second valve passageway, and the third one-way valve includes a third valve member, a third valve seat and a third valve passageway.

14. The apparatus of claim 11, wherein the hollow piston rod is cylindrical in shape.

15. The apparatus of claim 11, wherein the reload chamber is sealingly attached to the cylinder apart from the first aperture.

16. The apparatus of claim 11, wherein the transfer chamber is sealingly attached to the cylinder apart from the second aperture.

17. The apparatus of claim 11, wherein the discharge chamber is sealingly attached to the transfer chamber apart from the third one-way valve.

18. The apparatus of claim 11, wherein a diameter of the cylinder is greater than a diameter of the reload chamber.

19. The apparatus of claim 11, wherein a diameter of the cylinder is greater than a diameter of the transfer chamber.

20. The apparatus of claim 11, wherein a diameter of the hollow piston rod is equal to or less then a diameter of the transfer chamber.